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(54) Retail trading systems

(57) A system for retail trading comprises an image storing arrangement 11 storing images of items being traded (e.g. carpets), an image index arrangement 12 connected with the said storing arrangement and containing identifiers for the images therein, an image retrieval arrangement 14 and display means 13 (e.g. a video screen) for displaying retrieved images. A transaction data processing arrangement 16 includes a data input arrangement 15, and a data output arrangement 17 by which the displayed-image identifier from the index arrangement 12 is automatically output. Composite images can be handled.
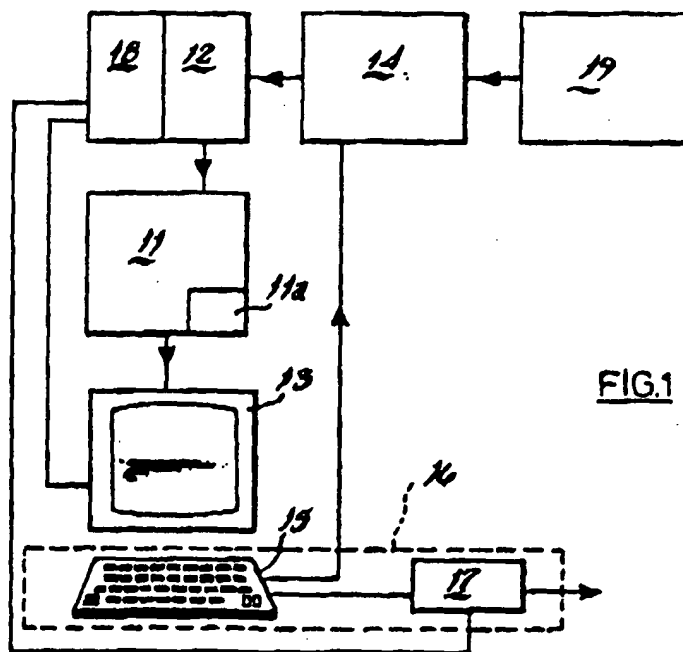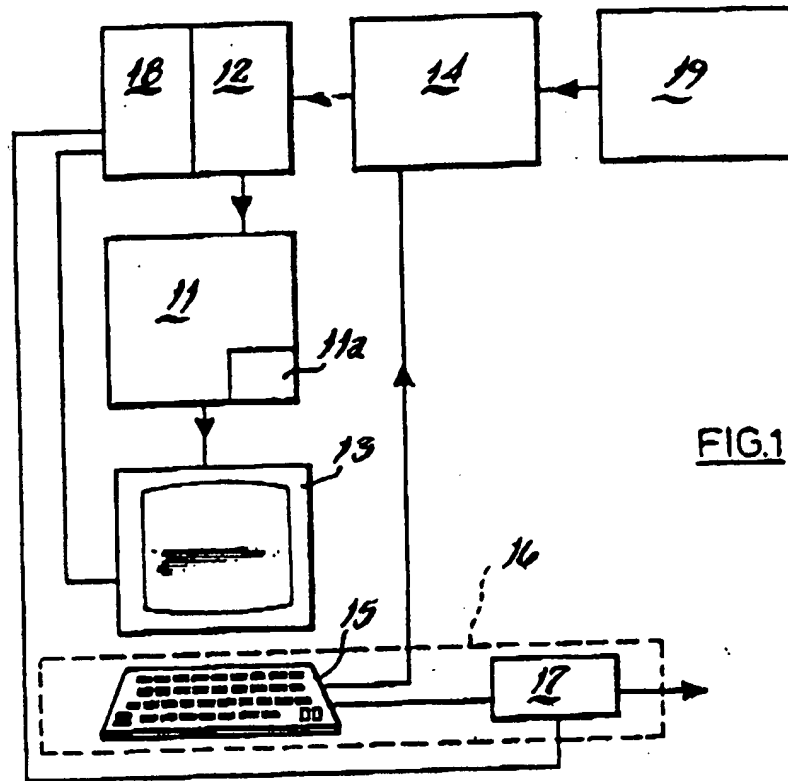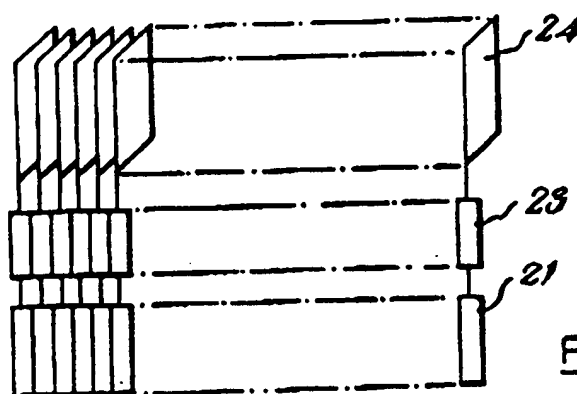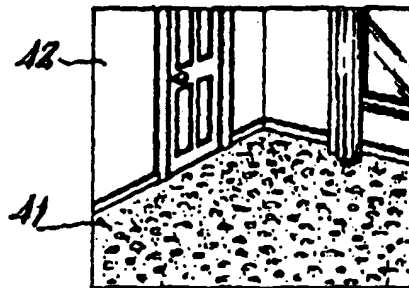

FIG.1

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FIG.1

FIG.2

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A 1 1	A 1 2	B 1 2	R 1 2	A 2 2	Z 1 9						D 1 1	E 2 2	D 1 2
x	x	x	x	x	x	—	—	—	—		x	x	x
x	x	x	x	x	x	—	—	—	—		x	x	—
x	x	x	x	x	—	—	—	—	—		x	x	—
x	x	x	x	—	—	—	—	—	—		x	—	—
x	x	x	x	—	—	—	—	—	—		x	—	—
x	x	x	x	—	—	—	—	—	—		x	—	—

<u>FIG.3</u>

<u>FIG.4</u>
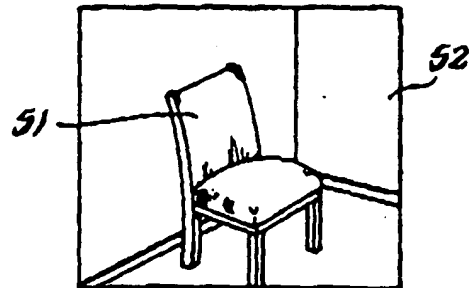
<u>FIG.5</u>
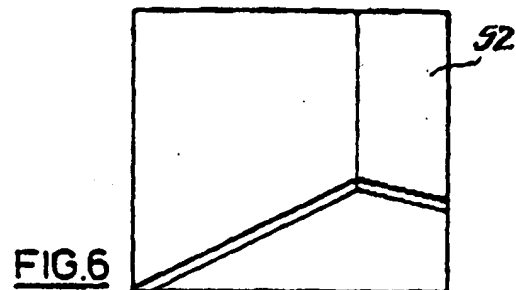
<u>FIG.6</u>

SPECIFICATION

Retail trading systems

5 This invention relates to retail trading systems.

The invention is particularly concerned with systems for trading large items that need to be delivered to rather than carried away by 10 the customer, and items that may be customized at least to some extent or fitted. An example is carpets, which are large and require fitting.

If a carpet retail outlet is to carry a compre-15 hensive inventory of carpets, it must necessarily be housed in premises of some size, which, in a prime shopping area, would involve high rent and rates. It is usual therefore to site such premises out of town. Neverthe-20 less, there are problems involved with the display of many carpets, and customers can find it daunting to select from extensive arrays of patterns, textures and colourways.

Moreover, the carrying of such a compre-25 hensive stock as will at least permit inspection "in the piece" is itself an expensive business.

Accordingly, there is a tendency to sell carpet by sample. The retail premises need carry no or hardly any stock, and can be accommo-30 dated in more compact premises far less expensively, even on prime retail sites.

However, a disadvantage of this is that it is difficult for customers to appreciate, from a small sample, how a carpet will look in their 35 room setting, and how it will relate to their furniture and other effects, for example. Sometimes photographs of a "typical" room are included in a pattern swatch.

Sale by sample involves, moreover, the pre-40 paration of a transaction record on the basis of a sample identifier—usually an alphanumeric code. The identifier is often on an adhesive ticket, and mistakes can arise through loss of or damage to, misreading or wrongly tran-45 scribing the identifier.

The present invention provides a system by which these disadvantages can be avoided.

The invention comprises a system for retail trading comprising an image storage arrange-50 ment storing images of items being traded, an image index arrangement connected with the said storage arrangement and containing identifiers for the images therein, an image retrieval arrangement and display means for dis-55 playing retrieved images, and a transaction data processing arrangement including a data input arrangement and by which the displayed image identifier is automatically input from the index arrangement.

60 Said image storage arrangement may comprise video disc means and said display means a video screen.

Said input arrangement may comprise an alphanumeric keyboard.

65 Said input arrangement may comprise a spe-

cial function key operable to put the input arrangement into a transaction specifying mode in which the identifier for the currently displayed image is automatically input from the 70 index arrangement into a transaction record.

Said input arrangement may comprise a special function key operable to put the input arrangement into an image retrieval mode.

The image index arrangement may contain a 75 categorised image index, and the said retrieval arrangement may then be operable to retrieve images on a category basis, preferably, selectively, images falling into two or more categories. Such retrieved images may be automati-80 cally displayable sequentially.

The stored images may be composite images comprising a first image component generated from an item being traded and a second image component generated by computer 85 software. The two components of the composite image may be held in different parts of the said image storage arrangement. The second component may comprise colourway information. The first image component may be 90 associated with mask information limiting the displayed area of the second image component to the area not occupied by the first image component.

The system may also comprise colour input 95 means connectable to said image retrieval arrangement and operable to cause said image retrieval arrangement to select only images having colourways related to a colour input via said colour input means.

100 The system may also be operable to display price and/or availability information with a selected image.

The system may have means for connection to a remote station for transmission of tran-105 saction information to said remote station and transmission of price and/or availability information from said station.

Embodiments of systems for retail trading will now be described with reference to the 110 accompanying drawings, in which:

Figure 1 is a diagrammatic representation of a system for trading e.g. carpets,

Figure 2 is a diagrammatic representation of an image storage and index arrangement,

115 Figure 3 is a diagrammatic illustration of a retrieval arrangement operable to retrieve images on a category basis,

Figure 4 is a representation of a composite image,

120 Figure 5 is a representation of another composite image, and

Figure 6 is a representation of a component of the image shown in Figure 5.

The system for retail trading illustrated in 125 the drawings comprises an image storage arrangement 11 storing images of items being traded such for example as carpets, furniture, clothing, household textiles, homewares and even motor vehicles. The image storage ar-130 rangement 11 may comprise a video disc ar-

rangement of the kind, commercially available,
that have controlled access to images stored
thereon so that a single video frame can be
addressed. A Phillips Laservision VP35 disc
5 player is suitable.

The storage arrangement can also comprise
a frame store 11a for storing image informa-
tion in digital form for use in image processing
applications, referred to below.
10 An image index arrangement 12, connected
with the storage arrangement 11, contains
identifiers—for example—alphanumeric codes
21 in digital form—in random access memory
(Figure 2) having common memory addresses
15 23 with the address of the individual images
24 in the image store 11.

A video screen 13 receives video signals
from the image store 11. Individual images/-
frames are retrieved from the index arrange-
20 ment 12 by an image retrieval arrangement 14
controlled by signals from an input arrange-
ment 15 comprising a standard alphanumeric
keyboard which is part of a transaction data
processing arrangement 16 which also in-
25 cludes a data output arrangement 17 which
may comprise a printer or a visual display unit
or a modem connecting the arrangement to a
remote arrangement adapted to receive the
data or simply a storage arrangement connec-
30 table to any of the above for subsequent in-
terrogation.

Associated with the index arrangement 12
can also be a database 18 accessible in the
same way and containing information on price
35 and/or availability of items which images are
stored in the image storage arrangement 11.
Information from the database 18 can be
called up to appear on the video screen 13,
either superimposed on the video image or on
40 a separate screen alternatable with the video
image. A dedicated or special function key on
the keyboard 15 can be used to call for (and
cancel) the information display.

Likewise, a special function key on the key-
45 board 15 is operable to put the input arrange-
ment 16 into a transaction specifying mode in
which the identifier for the currently displayed
image is automatically input from the index
arrangement 12 into the output arrangement
50 17 as part of a transaction record. The re-
mainder of the record—date, customer's
name and address, number of items ordered,
price, credit details, discount, method of pay-
ment, delivery date and so on -can be entered
55 from the keyboard. More sophisticated pro-
gramming can permit information from the
data base being available—say price—and op-
erated on by standard operators—say price
multiplied by (keyboard input) number of items
60 can given gross price, operated on in turn by
a standard discounting arrangement (say 5%
off for cash), or by a standard credit arrange-
ment so as to add on a percentage interest
and divide the total by twelve or twentyfour
65 to give a monthly payment.

Software for this transaction specifying
mode of the input arrangement can be, with
considerable user advantage, menu driven.
The first menu might for example contain the
70 following options:

Display details
Place Order

75 Selecting "Display details" (by whatever
means is chosen, say by moving, using the
keyboard space bar or line feed key, a cursor
or selection device next to "Display details"
on the screen) throws up on to the screen the
80 details of price/availability held in the database
18, together with a prompt that might say
"Press Cancel to exit". Selecting "Place or-
der" can call up a series of prompts such as
"Enter customer's name", "Enter customer's
85 address", and "Enter amount required", as
well as subsidiary menus such as

Payment method:
    Cash
90   Credit
    Cheque
    Credit card

which might then have another menu called
95 up, in the event "Credit card" is selected list-
ing accepted cards.

The keyboard 15 also has a special function
key putting it into an image selection mode.
This may also be menu driven, the menus
100 offering choices depending on the items being
traded.

For selling carpets, a typical first menu
might comprise a choice of price ranges, fol-
lowed by a menu offering a choice of plain or
105 patterned, another offering a choice of con-
struction, another, pile type, and another, col-
our.

The identifier used in the index arrangement
12 may contain coding, as illustrated in Figure
110 3 categorising the items into the choices indi-
cated above or such other choices as may be
appropriate to whatever item is being traded.
For example the first symbol in the identifier
might indicate a price range, the second
115 whether the carpet is plain (1) or patterned
(2), the third the choice of construction (e.g.
Wilton, Axminster, tufted, foam-backed, etc)
and so on.

The keyboard 15 might then, by pressing an
120 appropriate key, be put into an automatic se-
quencing mode, in which all carpets conform-
ing to the selection are displayed in sequence,
a 'pause' key being available for taking a lon-
ger look than the automatic sequence allows
125 (which might be just a few seconds for in-
stance). Or the sequencing might be, at will,
effected manually be pressing an "Advance"
key. In any event, the selected image is dis-
played on the video screen 11 and the associ-
130 ated identifier made available to the transac-

tion data processing arrangement 17 as well
as the associated database information being
made available both to the screen 13 and the
processing arrangement 17.

5   The images stored in the storage arrange-
ment can with advantage show the item
against a background—a carpet, for example,
can be shown in a room setting, and the
same carpet can be shown in different room

10   settings to help the customer choose the ideal
carpet, whether as to colourway, or size or
nature of pattern, for his decorating scheme
or furniture.
   Each image can of course be complete in

15   itself, so that to cover one carpet in ten dif-
ferent room settings, ten image frames are
provided in the storage arrangement 11. Such
ten image frames can be produced by imaging
an actual carpet in ten different actual rooms.

20   This will clearly produce visual images of high
quality, but may be tedious and costly in prac-
tice.
   The ten images may, on the other hand, be
composite images, in which, for example, only

25   the carpet is imaged from an actual carpet,
the remainder of the image being computer
generated, either from scratch or from an im-
age of an actual room which has been image-
processed so that for example the colours of

30   the walls, ceiling and woodwork are false, and
are different or in different combinations (or
colourways) for each of the ten images. Figure
4 is a representation of such a composite im-
age where the carpet area 41 of the image,

35   which is produced from a video picture of an
actual carpet, is used together with a setting
or background image component 42. A series
of such images is produced with different
false colour colourways for the background

40   image component 42.
   Figure 5 shows another composite image in
which an image 51—shot from actuality—of
a chair is shown against a room background
52. Figure 6 shows the background 52 only,

45   which may be so simple as to be readily com-
puter-generated without the need to realise
the same in practice. The chair image 51 is
accompanied by masking information which
cancels the background component of the

50   computer generated image, so as not to inter-
fere with the real image component. In this
way, differently shaped chairs or other articles
can be shown against the same background,
and the background may itself be changed as

55   to colourway (among other things) so as to
provide a series of composite images. The
colourway information can be part of the com-
puter software and provide operators acting
on a basic computer generated setting design

60   to change the colourway. In this way, the pro-
vision of a selected twenty (say) channels is
provided in software instead of requiring
twenty separate video frames to be stored.
   This could, alternatively, be a way of gener-

65   ating video frames for storage, which would

reduce computation and hence access time.
However, where the changing information in
the screen is background information, it may
be desirable first to locate the item being

70   traded and then to apply software to change
the background through a sequence of col-
ours.
   A colour sensor 19 (Figure 1) can be used
to select retrieved frames to a colour of a

75   sample, perhaps of a favourite curtain material
or piece of furniture, proffered for its examina-
tion by an intending purchaser. Instead of ac-
tually bringing in a sample (which might be
difficult in the case of a large item of furniture)

80   a colour matching card can be supplied to be
compared with the original and brought in in-
stead for examination. The colour sensed can
then be translated into an appropriate colour
code and used instead of a keyboard input to

85   select a colour category.
   The invention is not to be limited to the
precise details described and illustrated. The
video screen 13 could, for example, be re-
placed by any other suitable display arrange-

90   ment such for example as a slide projector.

CLAIMS
   1. A system for retail trading comprising an
image storage arrangement storing images of

95   items being traded, an image index arrange-
ment connected with the said storage arrange-
ment and containing identifiers for the images
therein, an image retrieval arrangement and
display means for displaying retrieved images,

100 and a transaction data processing arrangement
including a data input arrangement and by
which the displayed image identifier is auto-
matically input from the index arrangement.
   2. A system according to claim 1, in which

105 said image storage arrangement comprises vi-
deo disc means and said display means a vi-
deo screen.
   3. A system according to claim 1 or claim
2, in which said input arrangement comprises

110 an alphanumeric keyboard.
   4. A system according to any one of claims
1 to 3, in which said input arrangement com-
prises a special function key operable to put
the input arrangement into a transaction spe-

115 cifying mode in which the identifier for the
currently displayed image is automatically input
from the index arrangement into a transaction
record.
   5. A system according to any one of claims

120 1 to 4, in which said input arrangement com-
prises a special function key operable to put
the input arrangement into a image retrieval
mode.
   6. A system according to any one of claims

125 1 to 5, in which the image index arrangement
contain a categorised image index and the
said retrival arrangement is operable to re-
trieve images on a category basis.
   7. A system according to claim 6, in which

130 said image retrieval arrangement is operable to

retrieve images selectively falling into two or
more categories.

8. A system according to claim 6 or claim
7, in which said image retrieval arrangement is
5 operable automatically to retrieve images se-
quentially.

9. A system according to any one of claims
1 to 8, in which said stored images are com-
posite images comprising a first image com-
10 ponent generated from an item being traded
and a second image component generated by
computer software.

10. A system according to claim 9, in
which the two components of the composite
15 image are held in different parts of the said
image storage arrangement.

11. A system according to claim 9 or claim
10, in which said second component com-
prises colourway information.

20 12. A system according to any one of
claims 9 to 11, in which said first image com-
ponent is associated with mask information
limiting the displayed area of the second im-
age component to the area not occupied by
25 the first image component.

13. A system according to any one of
claims 1 to 12, comprising colour input means
connectable to said image retrieval arrange-
ment and operable to cause said retrieval ar-
30 rangement to select only images having col-
ourways related to a colour input via said col-
our input means.

14. A system according to any one of
claims 1 to 13, operable to display price an-
35 d/or availability information associated with a
selected image.

15. A system according to any one of
claims 1 to 14, having means for connection
to a remote station for transmission of tran-
40 saction information to said remote station and
transmission of price and/or availability infor-
mation from said station.